In the Specification

Delete the paragraph beginning on page 1, line 25, and replace it with the following paragraph:

This invention relates generally to the field of optical lithography, and in ~~particularly~~particular, to an approach for enforcing a design data hierarchy for long-range calculations, regardless of the size of the Region Of Interest (ROI), for use in model-based optical lithography simulations and Optical Proximity Correction (OPC).

Delete the paragraph beginning on page 7, line 24, and replace it with the following paragraph:

In this second aspect, it should be noted that the substantially identical groupings of the truncated cells transforms such groupings into a single building block, whereby a plurality of such single building block are ultimately used to generate the hierarchal arrangement. These building blocks may occur at numerous locations across the map of truncated ~~cell~~cells, either as exact duplicates, rotated versions, mirrored versions, rotated-mirrored versions and combinations thereof. Also in this second aspect, the desired design data hierarchy may be enforced by maintaining the desired design data hierarchy, or alternatively, building a new design data hierarchy upon at least partial destruction of the desired design data hierarchy. The desired design data hierarchy and the new design data hierarchy may be identical to each other, or different from each other.

Delete the paragraph beginning on page 8, line 19, and replace it with the following paragraph:

Fig. 1 is a block diagram flow chart of the preferred steps employed in practicing the present invention.

Delete the paragraph beginning on page 9, line 5, and replace it with the following paragraph:

Fig. 3B is a schematic of the cell layout of Fig. 3A showing the cells having convolving densities.

Delete the paragraph beginning on page 13, line 17, and replace it with the following paragraph:

In the preferred embodiment of the invention, wherein the long-range effects include flare effects, the step of truncating convolved cell or square densities is referred to as gradation of a flare map. Grading refers to a many-to-one mapping of a set of high precision computed numbers to a set of low-precision numbers. In flare map gradation, the mask or finite geometrical shapes (polygons) used are typically designed with a pre-defined precision in initial design step, whereby convolved cell densities typically describe geometries of these designs shapes that are represented on a grid display of the hierarchal level being simulated. However, this grid display is often restricted by resolution capabilities, and as such, imposes minimal actual value on the predetermined design. Again, as one of the objectives of the invention is to improve the hierarchy of the design by renesting or rebuilding the flare map, there is no point in

preserving such initial design in any higher precision than that defined in the design step.

Delete the paragraph beginning on page 13, line 30, and replace it with the following paragraph:

Accordingly, the present invention advantageously overcomes such problems by truncating the initial predetermined design integers such that flare calculations will be capable of defining the amount that original geometries are truncated due to flare effects. In so doing, the ranges of flare are preferably estimated so that flare effects on geometries differ only on a part of the design step. As flare is an effect of the second order, in comparison to effects of nearby objects, it is estimated that a relatively small amount of ranges (around one dozen) in flare map presentation is sufficient for flare calculation. In this way, the initial flare map that was created as a table of floating point numbers has been reworked in accordance with the invention, i.e., truncated, to contain only a limited number of different values.

Delete the paragraph beginning on page 17, line 16, and replace it with the following paragraph:

The rebuilt hierarchy map may then be used for any long-range computation. Alternatively, the rebuilt hierarchy map of the invention may be used for a variety of other computations that do not rely on exact geometries of shapes, such as, image density maps, perimeter maps and the like. In the preferred embodiment, after the original design data hierarchy has been reprocessed as described above, flare calculations can then be imbedded in a standard simulation procedure.